

DESCRIPTIONS OF SOME

WEST INDIAN PLANTS

WALLICH



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8. A. *Hedyotis* *fricta*
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Descriptions of some rare Indian Plants, by N. Wal-
lich. Esq. Superintendent of the Botanic Garden, Cal-
cutta.

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Hedyotis fricta. Wall.

ERECTA asperula, ramis elongatis subdichotomis nudis, foliis lineari-
 bus, stipulis truncatis limbriatis pedunculis terminalibus longissi-
 mis ternis subpaniculatis, stigmatibus linearibus.

Habitat in montibus Nepalize, inque Turraye huic vicina; vigena Mar-
 tio-Mayo.

Herba gracilis, tenuis, stricta, pedalis sesquipedalisque, radice perenni
 longa fibrillosa alba.

Caulis obsolete tetragonus, pubescens punctisque minutis elevatis sca-
 briusculus. Rami oppositi subbrachiati, filiformes, cretiusculi, sub-
 complanati, semel bisve dichotomi.

Folia angustissima, glabra, pollicaria ad bipollicaria, internodiis longiora,



Costa lobata elevata, basi decurrente in stipulas brevissimas vaginantes crenulatas dum juniores denticulis aliquot subulatis notatas; superius subulata.

Flores magni, extus purpurascentes, glabri, terni, cum solitario e dichotomiis, pedunculis elongatis gracillimis erectis instructi.

Calycis dentes lanceolati, erecti, acuti, basi tubi adpressi.

Corolla hypocrateriformis. *Tubus* gracilis, striatus, obsolete tetragonus, semipollicaris, calyce multoties longior, apice leviter ampliatus. *Laciniae* oblongae, obtusiusculae, patentes, tubi dimidium aequantes.

Antherae lineares, longae, erectae, cum laciniis alternantes, fauce inclusae, filamentis capillaribus brevissimis insidentes.

Ovarium oblongum glabrum biloculare, loculis polysporis ovulis septo utrinque incrassato insertis. *Stylus* brevis, glaber. *Stigmata* inclusa.

Capfula subglobosa, magnitudine piperis nigri, glabra; fusca, placentis carnosis, inferne septo utrinque adnatis.

Observation. This elegant plant which appears to me quite distinct from *Hedyotis graminifolia*, LINN. was first communicated to me by my esteemed friend Mr. WILLIAM JACK, of the Honorable East India Company's medical service, to whose liberal and valuable botanical communications I am indebted for descriptions, drawings, and specimens of several interesting plants, from the former of which the preceeding account has almost entirely been taken. I had it afterwards from Napaul whence my people sent abundance of specimens to me, under the names of *Gofhega Soah*.

I have retained the specific name given by Linneus to a species of *Oldenlandia* which has been ascertained not to differ from his *Hedyotis graminifolia*, and I have placed my plant under the last mentioned genus on the authority of the illustrious president of the Linnean Society (see *Hedyotis* in Rees' *New Cyclopaedia*) and that of my predecessor in the botanic garden at Calcutta, the late Dr. WILLIAM ROXBURGH, who in a note to *Oldenlandia*, in his

Mss. Flora Asiatica points out the apparent identity of these two genera.

Androsace cordifolia. Wall.

Villosa, foliis ovato-cordatis obtusis sinuatis crenulatis scapis petiolos subæquantibus; umbellâ pauciflorâ involucris setaceis; calyce campanulato corollâ breviori, fructifero ampliato.

Habitat in fylvis prope Katmandu Nepaliz, vigens initio anni.

Nomen *Boole Soak.*

Radix gracilis nigricans fibrillosa.

Folia plura, erecto patentia, regulariter sinuata, lobis latis rotundato-acutis, baseos approximatis, bi-tripollicaria, suprâ rugosula, pilis hyalinis geniculatis præcipue ad vasorum tractus obsita, ciliata, subtus glabriora, venulosa, costâ nervisque alternantibus prominulis.

Petoli teretes, graciles, folium æquantes purpurascens, basi membranaceo dilatati, uti scapi umbellæque vestiti villis copiosis longis rufescentibus.

Scapi plures, filiformes, erecti.

Umbella patens, pauciflora, radiis capillaribus pollicaribus. *Involucrum* constans bracteolis lineari-subulatis vix bilinearibus villosis, pedicellos numero æquantibus.

Flores majusculi.

Calyx obsoletè quinquangularis, fundo rotundato, laciniis quinque ovatis acutis ciliatis, patulis.

Corolla albida, utrinque villosula. *Tubus* cylindricus calyce angustior medio vix dilatatus. *Faux* nuda, leviter contracta, flavescent. *Lacinia* tubo breviores subobovatae leviter retusæ patulæ.

Filamenta brevissima, laciniis corollæ alternantia. *Antheræ* erectæ medium tubi haud attingentia.

Ovarium subrotundum, glabrum, obsoletè quinque-fulcatum, uniloculare polyspermum, ovulis placentæ centrali stipitatae insertis. *Stylus* capil-

laris. *Stigma* capitato-clavatum supra staminibus parum elevatum. *Capfula* rotundata, fundo calycis persistentis globoso recondita, basi styli coronata, vertice dehiscens in valvulas quinque ovatas acutas. *Semina* plurima, minuta, fusca, asperula, subrotunda, inserta placentæ globosæ paleaceo-villosæ pedicellatæ.

Observation. The opinion of Dr. F. HAMILTON (late BUCHANAN,) and Sir J. E. SMITH, relative to *Androsace rotundifolia* (Exot. Bot. 2. p. 113) applies with equal force to this pretty little plant; both are belonging to Androsace, to which genus *Cortusa Gmelini* ought also to be referred, as has been remarked by GÆRTNER and LAMARCK. The affinity between the latter and my plant is very great. All its parts, especially the footstalks and calyces are beset with long very soft, transparent, beautifully articulated hairs, which frequently have a reddish or purplish tint. The leaves are said to possess a disagreeable smell when fresh.

Primula prolifera. Wall.

Glaberrima, nuda, foliis oblongis subspathulatis obtusis dentatis petiolatis, scapo longissimo, floribus umbellatis demum verticillatis, bracteis linearibus f. foliaceis difformibus.

Habitat in montosis prope Sylhet Bengalæ orientalis ubi floret a Februario usque ad Aprilem.

Planta omnibus partibus glabra, farinaque carens.

Radix constans fibris crassis cylindricis cornosis rubicundis, radículas capillares breves exferentibus,

Folia erecto-patentia, sæpe obovata, argutè denticulata, valde obtusa, supra leviter convexa, subtus costâ magnâ nervisque prominentibus notata, deorsum attenuata in petiolum latum canaliculatum marginatum; spithamea ad dodrantalia et ultra.

Scapus gracilis teres erectus, foliis fere duplo longior.

Umbella terminalis, densa, mox post anthesin, elongatione caulis sensim mutata in verticillos duos, tres quin quatuor multifloros, inferiores remotiusculos pollicem duosve distantes.

Bractææ plures subulatæ s. lineares, pedunculis parum breviores basi gibboso-dilatata connatæ; nunc infra verticillum inferiorem difformes foliaceæ lanceolato-ovatae, acutæ, undulatæ, crenulatæ, ipsum verticillum longitudine æquantæ.

Flores in singulo verticillo viginti v. plures, erectiusculi, flavi, fragrantissimi, pedunculis infidentes erectiusculis gracilibus sesquipollicaribus, raro ad medium bracteolâ parvâ munitis.

Calyx tubulosus basi obsolete quinquangularis; lacinia lanceolata, acutæ dorso convexæ.

Corolla hypocrateriformis. *Tubus* calyce duplo v. triplo longior, cylindricus, decemstriatus, sursum leviter ampliatus. *Limbus* planus, laciniiis obcordatis crenulatis basi contractis, sinu acutangulo intergerrimo. *Faux* contracta, notata tuberculis quinque minutis bilobis.

Ovarium globosum. *Stylus* brevissimus. *Stigma* subcapitatum.

Filamenta subulata, supra basin tubi inserta. *Antherae* erectæ, oblongæ inclusæ.

Capsula subglobosa stylo persistente coronata; matura haud visa.

Observation. For this valuable *Primrose* I am indebted to the industry and success of my assistant at Sylhet, Mr. M. R. SMITH, who sent plants to the botanic garden towards the close of 1817, producing abundance of elegant and sweetly perfumed flowers the next February. I have no doubt that this species as well as the not less desirable *P. denticulata* of Sir J. E. SMITH, (*Exot. Bot.* 2. pag. 109) which I have received both from Sylhet, and Nepaul and which has also blossomed freely this year, may be cultivated with facility and propagated from their fleshy roots, which possess the smell of anise peculiar to several members of this genus.

The only species with which this elegant plant may be confounded is *Primula verticillata*, Forsk. flor. arab. 42, figured by my venerated preceptor, the late professor M. VAHL in the 1st vol. of his *Symb. bot. tab. 5*. In the following particulars, however they differ sufficiently to be easily distinguished. My plant is perfectly smooth and has no tendency whatever to become mealy. Its leaves are oblong and rounded at their end, and their border finely denticulated. The whorls are many flowered with erect or adpressed bracts, which vary in their form, but generally are leafy in the lowest and linear in the others. The flowers are at first collected in a terminal umbel, soon after they have expanded the stalk shoots up from their centre, and is terminated by another umbel. In this manner three or four successive umbels become as many verticils. The corolla seems to be altogether larger; and the crenulated margins of its border wanting in *P. verticillata*.

Campanula stricta. Wall.

Aspera pilis brevibus rigidis, caule gracili tereti subdichotomo, ramis simpliciusculis strictis, foliis linearibus integerrimis sessilibus, mediis approximatis, calycibus subpaniculatis prismatico-turbinatis tubum campanulatum subæquantibus, corollis puberulis, laciniis lanceolatis, capsulis poris sex ad basin dehiscentibus.

Habitat in pratis prope Katmandu, florens initio anni.

Nomen vernaculum *Nausa Soah*.

Planta pedalis basi simplex, medio ramosus, omnibus partibus a pilis copiosis albicantibus aspera.

Folia sessilia, sparsa, bipollicaria, angustissima, leviter undulata, erectiuscula, ciliata, basi angustata, utrinque piloso-aspera, subtus costâ nervisque aliquot prominulis albicantibus.

Flores terminales subpaniculati majusculi, campanulati, cœrulei.

Pedunculi capillares elongati ad basin bracteolâ subulatâ muniti.

Calyx nervoso-angulatus, laciniis erectis lanceolatis acutis.

Corollæ tubus amplus limbo patente subcrenulato.

Stamina breviter. *Stigma* trilobum, lobis teretibus crassis patulis. *Stylus* pubescentibus.

Capfula tres lineas longa, inter nervos baleos poris inæqualibus dehiscens.

Observation. This species approaches to *C. gracilis*, Forst. differing however in its bell-shaped corol, the singular dehiscence of its capsule and the entire leaves,

Campanula pallida. Wall.

Hirsuta, foliis lanceolatis ferratis subpetiolatis, caule ramoso, pedunculis longissimis terminalibus subpaniculatis, laciniis calycis corollam campanulatam fere æquantibus.

Habitat in Napalia ad loca sterilia. Flœret cum præcedente.

Erecta, pedalis bipedalisque, omnibus partibus obsita pilis densis canis patentibus.

Radix lignosa, grysea.

Caulis teres, angulosus, subflexuosus, basi ramosus. Rami graciles alterni, simplices, subfastigiati.

Folia alterna, patentia, lanceolata, utrinque acuta, crenato-ferrata, pollicaria v. sesquipollicaria, basi attenuata in petiolum brevem marginatum, utrinque pilis densissimis cavis mollibus vestita. Superiora f. *floralia* linearia, eroso-dentata, unguicularia.

Flores terminales caulis ramularumque, solitarii, pedunculati, albi, paniculam formantes tenuem, terminalem, subfastigiatam.

Pedunculi filiformes, pollicares bipollicaresque, teretiusculi, nudi f. medio foliolo lineari stipati erecto-patentes, calycesque pilosi.

Calyx turbinatus, quinqueangularis, laciniis patentibus lanceolatis valde acuminatis corollam fere æquantibus.

Corolla campanulata striata extus pilosa, laciniis lanceolatis acutis.

Filamenta subulato-capillaria e basi triangulari incurvatâ ciliatâ; *anthera* conniventes elongatæ, lineares, apice filamenti denudatâ terminatæ, faucem haud attingentes.

Ovarium vertice glabrum. *Stylus* pubescens. *Stigmata* tria subulata recurvata.

Observation. I possess specimens of a plant, which probably is only a variety of this species, with radical and lower leaves oblong lanceolate dentate, purplish on the under surface; the upper ones linear-lanceolate, two inches long and remotely denticulated or almost entire; flowers pale blue. They were also collected in the fields near *Katmandu*.

Lobelia pyramidalis. Wall.

Lævis, caule erecto paniculato, foliis lanceolatis attenuato-acuminatis serrulatis, floralibus linearibus, racemis paniculatis foliosis, laciniis calycinis corollam æquantibus.

Habitat in *Nepalia* et *Bengala* orientalis floreans mensibus anni prioribus. Nomen *Kasianum Atia chao*.

Planta herbacea lævis, erecta, tri-quadripedalis foliosa, caule ramisque foliorumque marginibus plerumque violaceis.

Caulis teres, crassius, medullosus, angulis aliquot obtusis e ramulorum insertionem decurrentibus notatus, basi simplex, sursum ramulis axillaribus copiosis erecto-patentibus paniculatis simplicibus.

Folia sessilia, sparsa, patentia, elongata lanceolata serrulata, in apicem gracile attenuata, basi angustata, tenuia, costâ subtus elevatâ, nervisque arcuatis, reticulato-venosa; inferiora dodrantalis et

ultra, medii caulis angustiora brevioraque, 4-6 pollicaria; suprema linearia angustissimè acuminata, bipollicaria

Racemi terminales ramulorum omnium caulisque, paniculati, multiflori, oblongi, foliosi.

Pedunculi sparsi, approximati, patentes, filiformes, unciales, basi suffulti foliolo florali s. *bractea* lineari filiformi subintegerrimâ, ipsum longitudine paulo superante.

Flores albi vel pallide violacei, odorati.

Calyx oblongus, laciniis lineari filiformibus longissimis.

Corolla basi subtubulosa, secunda, juxta totam longitudinem fissâ, intus puberula, laciniis ciliatis, tribus intermediis lanceolatis, lateralibus duabus linearibus profundius separatis.

Filamenta distincta, linearia, ciliata. *Antheræ* violaceæ in tubulum apice incurvum cohærentes dorso pilis aliquot vestita, inferiores duæ fasciculo pilorum terminata.

Ovarium biloculare. *Stylus* filiformis. *Stigma* puberulum bilobum subexsertum.

Observation. In the beginning of 1816 I received for the first time specimens of this elegant *Lobelia* from my assistant Mr. SMITH at Sylhet; and in the beginning of 1818 I had abundance from Napaul. Its racemes are numerous and leafy and give the plant a very gay appearance.

Lobelia begonifolia. Wall.

Repens villosa herbacea, foliis brevè petiolatis subrotundo-cordatis dentatis basi inæqualibus, pedunculis axillaribus unifloris folium subæquantibus ebracteatis, laciniis calycinis linearibus acuminatis, medio vel basi 1-v-2 dentatis corollæ tubo paullo longioribus.

Habitat in agris prope Katmandu, vicens Aprili, Maio.

Nomen Teshephoga.

Caulis elongatus teres prostratus laxis, ramique radicanes apicibus leviter assurgentes graciles simpliciusculi, uti tota planta obsiti villis brevibus mollissimis capis hyalinis.

Folia alterna subbifaria, pollicaria vel infra lobis boleos rotundatis inæqualibus altero interdum oblitterato acutè et grossè dentata præcipue extorsum, inferiora rotundato-obtusa, superiora minora acuta, suprà glabriora subtus pallida ad vasa villosa, venoso nervosa.

Petiolis vix semiungiculares, suprà fulcati, apice parum dilatati.

Pedunculi pauci, erecti, crassiusculi, folium subæquantes raro longiores.

Calycis laciniæ glabræ, attenuato-acuminatæ.

Corolla coerulescens intus puberula, tubo fisso, limbo unilateralis, laciniis linearibus, lateralibus profundius separatis.

Filamenta apice connatæ. *Antheræ* violacæ imberbes, inferiores duæ pilo brevi cano terminatæ.

Ovarium oblongum medio leviter ventricosum, glabrum. *Stigma* integrum villosulum.

Capsula subrotunda, matura haud visa.

Observation. This elegant species is easily distinguished from all the others by its oblique leaves which in this respect are like those of a *Begonia*. The stems are creeping to a considerable extent rooting at short distances and sending forth fascicles of ascending generally simple, from 6 to 10 inches long branches, some of which lay down again and strike roots.

Uvularia parviflora. Wall.

Folius oblongo-lanceolatis valde acuminatis petiolatis, pedunculis oppositifoliis elongatis apice bracteam foliacea, floribus umbellatis infundibuliformibus, filamentis natis antheras subæquantibus

Habitat in nemaribus Napalia, vigens Aprili, Mayo.

Nomen Doola Soah.

Planta erecta debilis sæpe fruticibus vicinis superincumbens, omnibus partibus lævis tripedalis v. orgyalis.

Radix horizontalis crassa, emittens fibras copiosas carnosas cylindricas.

Caules aliquot teretes nitidi glaucescentes erecti nudi infernè usque ad digitum minimum crassi, induti vaginis bipollicaribus membranaceis acuminatis laxis purpureo-punctatis, supernè dichotomè ramosi.

Rami debiles hinc inde curvi foliosi subsimplices.

Folia oblonga in acumin longum gracile attenuata, basi acuta, margine membranaceo asperulo ad lentem denticulata, plana multinervia striata sexpollicaria, pollicem lata, superiora angustiora.

Petioles vix semiunguiculares a decurrente folio marginati, plano sulcati, basi dilatata semiamplexante.

Pedunculi versus summitates plures, erectiusculi, bipollicares, angulati papilloso-punctulati, infra apicem incurvam leviterque incrassatam folio florali rameis simili instructi, sexflori. **Pedicelli** filiformes, pollicares, umbellati ebracteati.

Flores cernui, e fusco flavescentes, infundibuliformes vix semiunciales, profundè sexpartiti, basi contractâ protuberantiis sex æqualibus brevibus gibbosâ. **Laciniae** lanceolatae, acuminatae, extus carinatae, intus planae laeves basi incrassatae excavatae in tubulum brevissimum: interiores tres paulo minores.

Stamina perianthii dimidium vix superantia, inter ejus basin et ovarium inserta, recta. **Filamenta** brevissima crassa latiuscula, antheris oblongis obtusis basi cordatis, parum breviora.

Ovarium triloculare ovatum, ovulis pluribus placentæ centrali adfixis, **Stylus** brevis crassus, **Stigmata** tria cylindrica patula obtusa, parum supra antheris elevata.

Uvularia umbellata. *Wall.*

Folliis subsessilibus ovalibus acutis, superioribus lanceolatis acuminatis,

umbellis oppositifoliis brevè pedunculatis bractea foliaceâ instructis, pedicellis elongatis divaricatis, staminibus perianthium fere æquantibus, antheris filamento triplo brevioribus.

Habitat et viget cum antecedente cui radice caule ramisque similis, staturâ vero minor graciliorque.

Folia bi-tripollicaria brevissimè petiolata, interiora basi rotundata, superiora lineari lanceolata, basi acuta.

Pedunculus umbellulæ brevis crassus valde incurvus subtus margine intermedio papilloso-cristato interdum duplici notatus. *Pedicelli* bipollicares subdeflexi.

Perianthium flavum, cernuum, profundè sexpartitum, pollicare, basi angustatâ subtubulosâ gibberibus sex rugosulis, alternis (laciniarum interiorum) minoribus notatum, supernè ampliatum patens. *Lacinia* lineari-cuneatæ, striatæ, acutiusculæ, subdenticulatæ, pilis brevibus argenteis adpressis confersæ, leviter ciliatæ, basi angustatâ definente in sacculum brevem cujus margini adfixum est stamen.

Filamenta filiformia erecta. *Antheræ* ad faucem floris.

Ovarium turbinatum, breve. *Stylus* gracilis stamina æquans. *Stigmata* elongata patentia, hinc puberula, clavata, supra antheris elevata.

Observation. This species seems to differ from *U. chinensis*. (Bot. Mag. Vol. xx. 916) in having yellow long peduncled flowers placed in spreading umbels opposite to the insertion of the leaves; in the segments being narrower and slightly pubescent, and the stigma raised above the long stamina.

I am in possession of a third apparently different plant, which from want of complete specimens I am not able at present to determine satisfactorily.

Convallaria oppositifolia. Wall.

Caule tereti, foliis oppositis petiolatis ovatis v. oblongis acuminatis glabris, pedunculis axillaribus nutantibus multifloris, perianthiis infundi-

buliformibus.

Habitat in montibus Bengalæ orientalis, etiam in Nepalia.

Nomen khafianum, Kattia Sekuria.

Radix perennis, magna, carnosa, conflans nodis pollicaribus ovatis f. rotundatis laevibus, vertice faveâ notatis amplâ duplici, deorsum fibras copiosas crassas aliasque capillaceas emittentibus.

Caules ex eadem radice numerosi obliquè adscendentes f. inclinati, triquadripedales, apice subnutantes, uti omnes plantæ parves laeves, nitidi, basi leviter incrassati, vaginati, punctis copiosis purpureis obstiti, teretes f. leviter compressi, firmi, crassitie caiami scriptorii, obsoletè articulatè flexuosi. *Vaginæ* aliquot ad inferiorem partem caulis erectæ alternæ cylindricæ striatæ purpurascèntes ore obliquè acutæ, emarcescentes.

Folia adscendentia, secunda, patentia, firma, subcoriacea, triquadripollicaria, in acumen gracile lineare attenuata, basi acuta, margine subrevoluta, lucida, supra atroviridia juxta nervos fulcata, subtus pallida 5 ad 7 nervia nervis alternis obsoletis, costâ elevatâ carinatâ. Juniora (turionum novellarum) decussatim opposita, lætissimè virentia.

Petiolî brevissimi, vix semiungulares, crassi, suprâ sulcati.

Flores e latere inferiore caulis, i. e. illo foliorum opposito provenientes nutantes, inodori, albi, punctis purpurascèntibus conspersi, laciniis viridescentibus.

Pedunculi axillares, solitarii, unguiculares, punctati, 3-ad 8-flori. *Pedicelli* gracillimi clavati semipollicares, basi mediove bracteolâ capillari incurvâ.

Perianthium apice leviter contractum, laciniis patentibus lanceolatis acutis, apice intus fasciculo villorum munitis.

Filamenta supra basin perianthii inserta, conniventia. *Antheræ* lineares sagittatæ exsertæ, conum formantes acutum stigma includentem.

Ovarium oblongum, teres, triloculare, trifidulum, loculis polysporis. *Stylus* filiformis subclavatus. *Sigma* subtrigonum villis plurimis hyalinis obfitum.

Bacca rubra, laevis, trifidula, magnitudine pisi, loculis tri-v. tetraspermis. Coct. ut in *Convallaria majali*, Gaert. carp. 1. 59. t. 16.

Observation I am indebted for roots of this plant to the industry of Mr. SMITH. They produced new shoots in February 1818, which blossomed the next month. The elegantly formed arched and shining leaves and the pretty, drooping flowers add to the interest, which this plant cannot fail creating in those, who have been delighted with the fragrance and beauty of its cognate *Lily of the valley* and *Salomon's Seal*. Its root is formed precisely like that of the latter (*Convallaria Polygonatum*) and it partakes of its whole habit, while its opposite leaves, affording another instance of true petioles in this genus, sufficiently distinguish it from that and all the other species.

I have since the abovementioned period received abundant supplies of roots seeds and specimens from *Napaul* through the liberality of the Honorable Mr. GARDNER.

Convallaria cirrhifolia Wall.

Scandens; foliis verticillatis senis linearibus apice cirrhatis.

Habitat in *Napala* ubi vocatur *Gosbasa*. Floret Aprili, ad Mayum.

Radix carniosa, digitum circiter crassa, nodis elongatis foveolatis.

Caulis uti tota planta laevis, leviter glaucescens, teres, crassitie calami scriptorii, attenuato elongatus, quadrifidus, debilis simplex scandens, basi nudus et purpureo-maculatus.

Folia lineam vel duas lata, pollices tres ad quatuor longa, striata, costâ subtus elevatâ, cauli approximata, marginibus revolutis, basi

subincrassata, apice attenuata in cirrhum brevem recurvatum filiformem semipollicarem; inferiora solitaria opposita ternave, reliqua disposita in verticillos sexfolios numerosissimos internodiis longiores, superiores valde approximatos.

Pedunculi axillares, tot quot folia, vel pauciores, teretes, semipollicares, nutantes, triflori. *Pedicelli* capillares pedunculos longitudine subæquantes, clavati, basi vel infra medium instructi bracteolâ albâ capillaceâ deciduâ.

Flores penduli, albi,

Perianthium tubulosum unguiculare, sexcostatum, versus faucem leviter contractum. Laciniae ovatae obtusae apice intus acervulo villorum terminatae.

Filamenta infra basin laciniarum inserta iisque opposita subulata brevissima. *Antherae* lineares, filamentis longiores subsagittatae, parum exsertae.

Ovarium teres subcylindricum triloculare, loculis bi-vel trifloris; *ovula* axi adfixa. *Stylus* filiformis. *Stigma* villis f. papillis hyalinis obtutum.

Observation. The only species to which this remarkable plant has any affinity is *Convallaria verticillata* from which, however, it is easily distinguished at first sight by the numerous many leaved verticills and the tendril at the end of each leaf.*

Daphne involucrata. Wall.

Capitulis axillaribus lateralibusque pedunculatis erecto-patentibus involu-
lucratis, perianthiis sericeo-villosis, foliis alternis oblango-lanceolatis

* Since the above description was presented to the Society I have got a copy of Reichenow's *Linnæa* in which, Vol. VI. 315, there is a description of *Polygonatum sibiricum*. This species, which none of the botanical authors in my possession quotes, is exceedingly like my plant; it seems however to differ in having few-leaved verticills and in the bractes being much larger.

petiolatis acuminatis, subtus glaucescentibus.

Habitat in sylvis montium prope Sylhet Bengalæ orientalis, florens tempore frigido.

Frutex ramosissima.

Rami teretes, glabri, cortice castaneo nixente, ætate asibante.

Folia alterna, raro opposita, petiolata, integerrima, tri-quadrupollicaria, basi acuta, coriacea, glaberrima, suprà nitidâ, costâ valde prominente nervisque copiosis subtransversalibus; reticulato-venosa.

Petiolî brevissimi, suprà plano-fulcati.

Stipulæ ad folia primordîalia subulata, pilosula, admodum caduca, nullo earum velligio manente.

Capitula axillaria et lateralîa in axillis foliorum præteriti anni, pedunculata, hemisphærica, erectiuscula, solitaria, rarius geminata, sex-ad decemflora.

Pedunculi pollicares vel infrâ, filiformes, graciles, incrassato-clavati, villosi, basi muniti bracteolis aliquot subulatis deciduis.

Involucrum caducum, purpurascens, diphyllum. Foliola ovata, obtusa, concaviuscula, semiungicularia, integerrima, pubescentia, intus sericea, striata, æstivatione florum capitulum omnino includentia.

Flores sessiles, albi, suaveolentes.

Perianthium hypocrateriforme, gracile, semipollicare; extus villis densissimis adpressis sericeis intus glaberrimum, marcescens limbo patente quadrifido; lacinia lanceolata, acuta, imbricantes: duæ oppositæ minores, æstivatione inclusæ. Faux nuda pervia.

Stamina octo, erecta, seriebus duabus tubo inserta; superiora quatuor subexserta, lacinîis opposita; inferiora iisdem alternantia in medio tubi. Filamenta capillaria, brevissima. Antheræ lineares f. oblongæ, utrinque longitudinaliter dehiscences, biloculares.

Pistillum brevissimum, quartam perianthii partem haud excedens. Ova-

rium-oblongum, basi nectario membranaceo cylindrico truncato integerrimo cinctum, supernè villis longis erectis barbatum, uniloculare, monosporum, ovulo vertice adfixo. Stylus filiformis villis ovarii occultus, iisque vix longior, leviter tortuosus. Stigma magnum, capitatum, cornosum, luteum, rugulosum, vertice retusum.

Observation. Specimens of this handsome shrub were sent to me in 1815 from Sylhet, by Mr. M. R. SMITH, who informs me that a very good and durable kind of hemp is prepared of its fibrous bark. With the exception of their being permanently erect, the heads of flowers agree well with Sir J. E. SMITH's excellent description of those of *Daphne pendula*. Plant. inèd. fasc. ii. 34.

Daphne cannabina Loureir?

Floribus aggregatis terminalibus sessilibus bracteatis, perianthiis pubescentibus; foliis lanceolatis sparsis sessilibus, retusis vel acutiusculis.

Daphne cannabina, umbellis terminalibus, foliis lanceolatis oppositis.

Loureir: cochinch. ed. Willd. i. 291. ?

Habitat in montosis *Hindoostaniæ* meridionalis, e *Nepalia* usque ad provinciam *Kamoon*, florens Decembre ad Martium. Fructus maturescunt mensibus Aprili et Maio.

Nomen *Set-Burooa*. Nepalesibus. *Bhultoo-Seang*. †

Frutex sex-ad octopedalis, ramosissima, ramis sparsis rigidis teretibus, cortice pallido glabro ruguloso, intus sericeo-fibroso.

Folia approximata, subcoriacea, lanceolata, f. oblongo-lanceolata, utrinque attenuata, apice sæpissimè retusa, interdum acuta, tri-quadrupollicaria, glaberrima, atroviridia, suprà nitida, subtus opaca, costâ elevatâ nervisque gracillimis sublongitudinalibus, interdum obsoletè et remotè crenulata.

† I understand from Mr. Gardner that *Soang*, *Soan* and *Swa* are synonymous terms in the language of *Nepaul*, and signify "flower."

Flores majusculi, albi, fragrantissimi, duodecim circiter congesti in capitulum terminale, sæpe (ut jam monuit Cel. J. Sims, sub *Daphne adora*, Botanical Magazine, vol. xxxviii. 1587) apice rami elongatâ pubescente pedunculatum, suffultum bracteis (foliis tenellis?) lanceolatis acuminatis glabris unguicularibus.

Perianthium tubulosum, extus pubescentiâ copiosâ sericâ obsitum, tubo cylindrico unguiculari, receptaculo dilatato tuberculato pubescenti subadnato; limbo patentissimo quadripartito, laciniis ovatis subretusis vel lanceolatis acutis. Faux pervia.

Stamina ut in priore. Series superiorum^a supra faucem elevata.

Pistillum laeve. *Ovarium* oblongum basi circumdatum annulo obsoleto angustissimo carnosio sublobato. *Stylus* et *Stigma* præcedentis.

Drupa ovato-oblonga, acuta, glabra, rubra. *Putamen* tenuissimum, submembranaceum, pallidum.

Semen globosum, album.

Radicula conica, faveolæ bascos catyledonum leviter immersa. *Plumula* punctiformis.

Coetera ut in *Thymelaea Mazereo*, Gaertn. carp. I. 188. tab. 39.

Observation. Among the extensive and constant supplies of plants and seeds from *Napaul* which the botanic garden owes to the liberality of the Honorable EDWARD GARDNER, Resident at *Katmandu* are also specimens and plants of the Paper-shrub, which I am informed by that gentleman grows very commonly in that country, and when in flower is exquisitely fragrant. It appears there are two varieties, one with perfectly white the other with reddish flowers; both are used for ornament and for the manufactory of Paper, of which I am enabled to present to the Society's Museum specimens of various dimensions and texture. The common kind measures generally about two feet square. The finest kind measures ten feet in length by 4 feet in breadth; and is manufac-

tured chiefly in *Dotee*, a province to the eastward of *Kamboon*. It approaches in softness and size to that which is made in *China*, and it is not improbable that some of the latter may be produced from the same material. LOUREIRO mentions that paper is manufactured in the neighbouring kingdom of *Cochinchina* from the bark of his *D. cannabina* which seems to differ only in having opposite leaves: a circumstance which may perhaps be owing to culture. It comes extremely near to *D. adora* of TRUNBERG and *D. indica* of OSBECK, which (at least that described in the *flora cochinchinensis*) Dr. SIMS with great propriety suggests may be only a variety of the former. The question respecting the identity or difference of these three plants can be settled only by those who have the means of comparing specimens of them.

I am indebted for an account of the manner of preparing the paper from the bark of this charming shrub, and for some parts of the description given above, to the communications of Lieut. H. R. MURRAY, and to the following notes extracted from the official correspondence of that gentleman with the Military Board at Calcutta.

"The *Set-burooa* or Paper-shrub is found on the most exposed parts of the mountains, and those the most elevated and covered with snow, throughout the province of *Kamboon*. In traversing the oak forests between *Bheemish* and *Rangur*, and again from *Almora* to *Chumpawat*, and down towards the river, it has come under the immediate observation of the writer of these communications that the *Set-Burooa* or Paper-plant only thrives luxuriantly where the oak grows; so that it is not likely that it will succeed in the plains. It is hardy and attains a height of 5 to 6 feet; blossoming in January and February, and ripening its acrid red fruit about the end of April. The paper prepared of its bark is particularly calculated for cartridges, being

" strong, tough not liable to crack or break, however much bent
 " or folded, proof against being moth-eaten, and not in the least
 " subject to dampness from any change in the weather; besides,
 " if drenched or kept in water for any considerable time, it
 " will not rot. It is invariably used all over *Kamoon*, and in great
 " request in many parts of the plains, for the purpose of writing
 " *Nusubnamees* or genealogical Records, Deeds &c. from its ex-
 " traordinary durability. It is generally made about one yard
 " square, and of three different qualities. The best sort is re-
 " tailed at the rate of 40 sheets for a current rupee, and at whole-
 " sale 80 sheets. The second is retailed at the rate of 50 sheets
 " for a current rupee and 100 at wholesale. The third of a much
 " smaller size, is retailed at 140 sheets, and wholesale 160 to 170, for
 " the rupee. The following is the very simple process of manufactur-
 " ing this paper. After scraping off the outer surface of the bark,
 " what remains is boiled in fair water with a small quantity of
 " the ashes of the oak, a most necessary part of the ingredients,
 " which has the effect of cleaning and whitening the stuff. Af-
 " ter the boiling, it is washed and immediately beat to a pulp
 " with small mallets on a stone, so that when mixed up in a vat
 " with the fairest water, it has the appearance of flour and water.
 " It is then spread on moulds or frames made of common bamboo
 " mats."

Daphne Gardneri. Wall.

Capitulis lateralibus pedunculatis tericels maximis exacte globosis, pe-
 rianthii laciniis subrotundis, interioribus crenulatis, stigmatibus acuto
 oblongo, foliis lanceolatis acutis petiolatis, subtus villosis,
 Habitat in montibus Nepalæ, ubi floret vigetque initio anni.
 Nomen vernaculum *Chuckmaroe. Soatu*.

Frutex orgyalis, staturâ et habitu antecedentis, ramis copiosis teretibus fuscis pubescentibus, junioribus leviter angulatis villosis.

Folia sparsa, utrinque acuta v. subacuminata, 4. ad 5-pollicaria, pollicem circiter lata, integerrima, suprâ glabra, subtus obsita pilis mollissimis longis adpressis; præsertim juxta vasa glaucescentia, costâ nervisque brevibus prominentibus albicantibus. Tenella uti capitula tomento vestita fericeo mollissimo densissimo.

Petiolî villosi, semiungulares, suprâ sulcati.

Flores subcarnosi flavi fragrantissimi, pollicares, extus capiosissimè et densissimè villosi, intus laeves, sessiles, quinquaginta circiter congesti in capitula ad ramulos lateralia, erecto-patentia demum nutantia, globosa, diametri sesqui-sel bipollicaris, basi cincta involucri octo-v. decemphylo emarcescente deciduo intus fericeo, foliolis lanceolatis acuminatis unguicularibus, reflexis et a floribus occultis.

Pedunculus subcomplanatus, pubescens, clavatus, striatus, sublignosus, pollicaris v. sesquipollicaris apice valde tumidus et intra involucri foliola elevatus in receptaculum semiglobosum crassum faveolatum villosum.

Perianthii tubus amplus cylindricus pallidus basi apiceque leviter contractus, rectus. *Limbus* patens, laciniis obtusis, interioribus (i. e. illis æstivatione reconditis) inæqualiter crenulatis.

Antheræ ovatae, utrinque juxta totam longitudinem dehiscentes: series superiorum supra faucem perviam exsertæ.

Ovarium obovatum, superne densissimè barbatum, basi cinctum annulo membranaceo crenulato angustissimo *Stylus* filiformis, pubescens.

Stigma subcylindricum, acutum, carnosum, stylo longius, vix ad inferiorem antherarum seriem elevatum.

Observation. Nothing can exceed the beauty and fragrance of this lovely shrub, which I lately received from, and which I have the greatest satisfaction in naming after its discoverer, the Honorable

EDWARD GARDNER, of whose invaluable botanical communications I have already had several occasions to speak before this learned Society. It is owing to the ready and most liberal compliance of that Gentleman with my wishes that I have been enabled to send two of my people to *Napaul*, under the sanction of Government, for the express purpose of collecting plants, seeds and preserving specimens for the Honorable Company's Botanic Garden at Calcutta; and it is to the protection and assistance he has invariably granted to them in their excursions in that novel country, as well as to his own individual researches, that I have to attribute the frequent and extensive additions which since September 1817 have almost daily been made to the riches of this institution, forming a memorable and important *Æra* in its annals. Among the many useful and ornamental vegetable productions thus received, this new and distinct species of *Daphne* stands foremost. I am informed it grows to be a large shrub and is cultivated extensively about *Katmandu*, both on account of its beauty and perfume, and also on account of the utility of its bark, affording a material of which a superior sort of paper is made in *Napaul*. The process of this manufactory, as well as the essential qualities of the paper, of which I have the satisfaction to present musters to the Society, does not differ from those of the other species.

Andiameda lanceolata. Wall.

Fruticosa, racemis terminalibus basi foliosis secundis brevibus simplicibus, corollis subovatis, filamentis ciliatis apice sagittatis, antheris muticis biporis, foliis lanceolatis utrinque acutis integerrimis, subtus puberulis.

Habitat in montosis Bengalæ orientalis ubi floret nitio anni.

Nomen Khassianum *Kattia-atianga*.

Rami rigidiusculi; juniores incano-villofi.

Folia sparsa, approximata, pollicaria et sesquipollicaria, coriacea, supra laevia nitida, subtus vasculosa, nervis suboppositis longitudinalibus reticulatis; pubescentia; adultiora glabra.

Petoli vix semiungiculares, pubescentes, suprâ canaliculati.

Racemi terminales omnium ramulorum, rarius laterales, solitarii, cylindrici, bipollicares, basi foliosi, pedunculo tereti angulato pedicellisqne unguicularibus puberulis.

Flores parvi, alterni, albi, cernui, pilis argenteis paucis adspersi, bracteolâ lineari ad basin pedicellorum.

Calyx urceolatus planiusculus, coriaceus, laciniis lanceolatis.

Corolla calyce pluries longior subcylindrica fauce parum contracta, leviter angulata. *Lacinae* brevissimæ, ovatæ, acutæ patulæ.

Filamenta capillaria, villis longis obsita, basi dilatata, infra apicem utrinque instructa denticulo subulato deorsum vergente, inde subfagittata. *Antheræ* oblongæ, basi emarginatæ, apice poris binis obliquis dehiscentes.

Ovarium, subovatum quinquesulcatum. *Stylus* longitudine circiter staminum, *Stigma* clavato-truncatum.

Capsula ferruginea magnitudine seminis piperis nigri, costis quinque dilutionibus elevatis ad commissuras valvarum. *Semina* plurima.

Andromeda ovalifolia. Wall.

Arborea, racemis lateralibus subterminalibusque elongatis foliis longioribus simplicibus conjugatisque attenuatis secundis, corollis cylindricis, filamentis ciliatis apice sagittatis, antheris muticis biporis, foliis ovalibus integerrimis acuminatis ferrugineo-nervosis.

Habitat in Napalia, florens capsulisque onusta Martio usque ad Junium
Nomen *Sagechu* et *Sheabogi*.

Ramuli teretes, nitidi, glabri, castanei, tenelli leviter compressi resinoso-

punctulati, pubescentes.

Folia approximata, patentia, sparsa, coriacea, cuspidulato-acuminata, basi rotundato-acuta integerrima, levissimè undulata, magnitudine varia, tri-ad quadripollicaria, utrinque conspersa pilis ferrugineis adpressis brevibus, præcipue juxta ramificationes vasorum, nervis approximatis suboppositis reticulatim anastomosantibus. Juniorum ramorum et floralia lanceolata, sesquipollicaria.

Petoli vix unguiculares, pilosuli, suprà canaliculati.

Racemi sex ad aëtopollicares, adscendentes, basi foliis aliquot floralibus villosis stipati. *Pedunculus* sublignosus, leviter angulatus, interdum punctis resinosis conspersus. *Pedicelli* filiformes, unguiculares vel infrà villosuli, basi bracteolâ lanceolatâ patente deciduâ.

Flores copiosi approximati albi, magni, cernui, inodori, pilis argenteo-fulgentibus adpressis.

Calyx urceolatus, coriaceus, glabriusculus, laciniis lanceolaris acutis patulis, nervosis.

Corolla semipollicaris, levissimè quinequefulcata, basi angustata, fauce parum contracta, laciniis ovatis acutis patulis.

Filamenta capillaria villis albis barbata, basi dilatata, apice infra antheram utrinque dente patulo deorsum spectante, inde subagittata. *Antheræ* ovato-oblongæ, muticæ, apice poro gemino obliquo dehiscentes.

Ovarium glabrum, quinequecarinatum. *Stylus* *Stigmaque* ut in antecede dente.

Capfula fusca, subrotundo-quinquangularis, costis quinque fasciatis elevatis, magnitudine pisi mediocris. *Semina* numerosa. Coet. ut in *A. calyculata*, Gaertn. Carp. I. 304. t. 63.

Observation. The leaves of this elegant tree vary considerably in size and form, from lanceolate to broad ovate, becoming almost cordate, more or less acuminate. They are of a firm and leathery texture, perfectly entire and without glands. The *arbutus* described by my esteemed friend COLONEL HARDWICKE in his tour to Sirti-

nagur (Aflat. Research. vi. p. 360. *A. herpeticus*, Mfs. GUIL. Roxb.) of which with his usual liberality I have been favored with the original drawing, is exceedingly like my tree. It differs however besides having a berry while the pericarp of mine is decidedly a capsule, in its leaves wanting the coloured rib, and the racemes being much shorter. Indeed if I could suppose the attribute of a Berry to have been founded on a slight mistake in the examination of the unripe seed vessel, I would venture to consider them as one and the same plant.

Since writing the above my esteemed friend Dr. GOVAN, Superintendent of the Botanic Garden at *Saharunpore* has favored me with the following observations on this interesting tree and with specimens which he gathered on the confines of *Chinese Tartary*.

"Your *Andromeda ovalifolia* occurs first on the hills between *Nahn* and *Subhatoo* at an elevation (by Barometer) of about 3000 feet, and continues to that of 8000 feet after which it becomes very rare and soon disappears entirely. It is called by the same name as the species of *Sirinagur*, *Aiaur* or *Airee* and grows to a tree of 20 to 40 feet in height; the bark of the stem and older branches much cracked and rough, that of the former almost *puberose*. The middle rib of the leaf is coloured, sometimes *pumiceous*; by drying both that and the nerves become ferrugineous. With regard to its use the same opinion prevails here as in *Sirinagur*, an infusion of the bruised leaves in water being considered a specific against cutaneous complaints of an herpetic nature both in the human species and in cattle; its operation is said to be attended with considerable pain. Sheep and Goats eat the leaves which, when young, are said to produce soporific and deleterious effects on them * When used as litter they are said to destroy insects in the stalls of the cattle. Excellent timber is so plentiful where this tree is found that its wood is only used for burning."

* Mr. Gardner informs me that a similar notion prevails in Nepal.

"I send you specimens of a very marked variety if not a distinct species which, if adopted, I propose calling *A. cordata*. It grows intermixed with your *ovalifolia* and exposed to similar external circumstances, and yet it preserves constantly its distinguishing character which consists in its leaves being much broader in proportion to their length, almost always cordate at the base, of a considerably more leathery texture and always longer than the racemes. In other respects, in habit, size, native name and uses the trees correspond exactly."

Andromeda fastigiata. Wall.

Fruticulus repens ascendens, ramis tetragonis fastigiatis, foliis sessilibus quadrifariè imbricatis adpressis lanceolato-sagittatis lateribus revolutis dorso canaliculatis, floribus axillaribus solitariis subnatis campanulatis, filamentis apice sagittatis, antheris biporis pendulis.

E. GOSSAIN—Than Napaliæ misit Dom. E. GARDNER; c. confinis Tartariæ chinensis G. GOVAN, M. D.

Nomen Napal. *Naba*.

Fruticulus palmaris ad quadrantalem basi nuda repens. Rami suboppositi simplices, stricti, fastigiati, 2-ad 6-pollicares, villosuli teretes, propter foliola ubique imbricata tetragoni.

Folia decussatim opposita, coriacea, gibbosa, bilinearia, circumdata membranulâ ciliatâ apice in ligulam productâ, lucida, lateribus supra dorsum villosulum revolutis.

Pedunculi solitarii, uniflori, folio duplo fere longiores, subclavati, villosi, basi squamulis aliquot imbricatis ovatis.

Flos parvus, albus, nutans, glaber.

Calyx 5-partitus laciniis lanceolatis, acutis membranaceo-marginatis.

Corolla calyce duplo longior, limbo 5 fido patenti, laciniis ovatis obtusis.

Filamenta capillaria apice aristis duabus descendens curvis capillaceis

antherâ ovatâ apice biporâ longioribus.

Ovarium depresso-globosum, sulcatum, nectario circumdatum annuli-formi obsoletè crenato, bases filamentorum adfigente. *Stylus* columnaris staminibus parum longior.

Capsula globosa calyce persistente brevior, 5-locularis, 5-valvis.

Observation. This elegant small species approaches to *A. cricoides*. It forms a compact ascending shrub, which at first sight may easily be mistaken for a heath. The branches are exactly four-sided, mostly undivided, though sometimes sending forth one or two small branchlets from their base; they are straight and all of the same height. The leaves are of a dark green shining colour; when they become old they assume a brownish hue and at length fall off, leaving the lower part of the branches and the whole creeping stem naked. They have a very peculiar conformation; the back being convex and gibbous with a deep longitudinal furrow owing to the sides being turned backward over it. Their internal surface, or that which is closely adpressed to the branch is flat and surrounded with a thin ciliated or lacerated membrane which elongates at the apex of the leaf into a setaceous point covering the sagittate base of that next above, and entering its dorsal furrow. Flowers few at the top of the branches, white, about four lines long, nodding.

Andromeda? formosa. Wall.

Arborea, paniculis terminalibus racemosis nudis, corollis ovatis secundis cernuis, filamentis pubescentibus, antheris utrinque longitudinaliter dehiscenibus dorso aristis duabus descendens. foliis oblongis acuminatis ferrulatis.

Habitat in Napalia, florens cum præcoccis.

Nomen Newar. *Acaboger*; Parbott. *Omala*.

Arbor mediocris, ramis teretibus fuscis lacrybus cicatricatis subsæcica-

latis.

Folia versus summities valde numerosa approximata patentia quadri-
ad sex-pollicaria, coriacea, firma, utrinque glaberrima, in acumen
gracile desinentia, basi acuta, margine incrassato serraturis par-
vis regularibus notata, suprâ lucida, subtus costâ valde elevatâ
crassâ nervis copiosis gracilibus, venisque pulcherrimè reticulatis.
Petiolis crassî, semipollicares, suprâ sulcati, sæpe rufescentes vel ferrâ-
ginei.

Panicula terminalis et ex axillis foliorum supremorum, hîc duplo
longior, erecta, pedunculata, ovata, densa, constans racemis erectis
subadpressis sessilibus, sparsis, cylindricis, digitum vix longis.

Pedunculi sublignosi, angulati pubescentes, leviter glaucescentes. *Pe-
dicelli* unguiculares puberuli, basi suffulti bracteolâ lanceolatâ,
adque medium duabus aliis minoribus.

Flores cernui, albi, inodori, glabri.

Calyx coriaceus, quinquepartitus, laciniis lanceolatis acutis, punctis re-
sinosis adpersus.

Corolla ampla, ventricoso-ovata, calyce triplo longior, nitida, laciniis
brevissimis recurvatis subreniformibus obtusis.

Filamenta crassa, subulata, puberula, dimedium corollæ vix attingentia.
Antheræ aurantiacæ, oblongæ, loculis apice basique solutis, dorso
subgibboso ad insertionem filamenti utrinque auctæ aristis dua-
bus capillaribus antheram dimidiam superantibus arcuatis apice
convergentibus,

Ovarium globosum, laeve, basi cinctum annulo carnosio obsoleto. *Stylus*
stigmaque priorum.

Observation. This beautiful tree comes near to *A. japonica* and some
other species with paniced racemes, it differs however specifically
from them all. Its flowers are extremely copious forming dense-
terminal bunches of an elegantly oval form. The leaves are of

a peculiarly firm and leathery texture, beautifully reticulated below, with the margin finely serrated from the very base almost to the end of their tapering point. They are perfectly smooth measuring an inch or an inch and a quarter in breadth.

It is not unlikely that this tree may prove to be a kind of *Arbutus*, the corol seeming to partake more of the character of that genus than of *Andromeda*. Not having yet seen the fruit I am unable to decide this question.

Gaultheria fragrantissima. Wall.

Ramis flexuosis, foliis ovato-lanceolatis serratis utrinque acutis subbifariis glabris subtus resinoso-punctatis, racemis axillaribus foliatis folia æquantibus ovarisque incano-pubescentibus.

Habitat in Napalia; florens Aprili.

Nomen *Sheaboogi*.

Frutex ramis rigidis fuscis teretibus leviter angulatis, junioribus pubescentiâ incanâ vestitis.

Folia alterna, interstitiis duplo longiora, patentia, coriacea, firma, triplicaria, lanceolata vel ovato-lanceolata, serrulata, marginibus subrevolutis, suprà lucida, subtus pallida punctis copiosis resinosis elevatis purpurascensibus notata, costâ sub-carinatâ nervis inferioribus suboppositis totam fere folii longitudinem excurrentibus, reticulato-venosa.

Petiolis brevissimi, crassi, profundè sulcati.

Racemi erectiusculi sessiles graciles multiflori pubescentes.

Pedunculus subflexuosus; pedicelli teretes vix lineas duas longi basi suffulti bractea lanceolatâ canaliculatâ patenti apiceque infra calycem aliis duabus oppositis ovato-cordatis amplexantibus concavis, acutis patentissimis.

Flores secundi, nutantes, suaveolentes.

Calyx subturbinatus laciniis ciliatis acutis patentibus.

Corolla subovata, calyce duplo longior, leviter angulata, extus glabra, intus pilosula.

Filamenta planiuscula, puberula, brevia. *Antheræ* fuscescentes, erectæ, conniventes, loculis terminatis cornu copillaceo furcato.

Ovarium planum villosum, circumdatum annulo carnosio obsoleto sublobato. *Stylus* columnaris brevis. *Stigma* obtusum.

Observation. This elegant shrub agrees so well with the character and habit of *Gaultheria*, as they have been defined by the celebrated author of the *prodromus floræ Novæ Hollandiæ* (vol. i. 558) that I hesitate not referring it to that genus. Not only the flowers but the leaves also partake of a very aromatic fragrance, which the plant retains a considerable time even after it has been dried; the plant might therefore be used at *Napal*, as *G. procumbens* is said to be employed in *Canada*, as an improver of inferior sorts of *Tea*. I have not yet had any opportunity of examining its fruit, which I am informed is eat by the Napalese.

Saxifraga ligulata. Wall.

Radice carnosa horizontali squamosa, foliis crassis rotundatis l. obovatis brevissimè petiolatis vaginisque ligulatis ciliatis, scapo brevi unibracteato, paniculâ terminali furcatâ, petalis calyce duplo longioribus.

Habitat in montibus Napaliæ et Bengalæ orientalis, florens Januario et Febuario.

Nomen Khafianum *Alia Torongfing*. Napalensibus *Sohanpe-Soah*.

Radix cylindrica, pollicem circiter crassa, fusca, intus lactissimè rufescens, pedalis et ultra, indivisa, lignoso-carnosa, solida, obsita bracteis (rudimentis vaginaram) magnis nigricantibus irregularibus patentibus emarcidis, deorsum emittens fibras longas teretes subsimplices.

Folia omnia radicalia, plana, terræ incumbentia, obtusissima, indivisa, basi leviter angustata, ad insertionem petioli retusa, crenato-dentata, dentibus crenisque ciliis longis pallidis inæqualibus terminatis, palmaria ad pedalia, uti omnes plantæ partes laevia, carnosæ, ad lentem punctata, suprà saturatè viridia, dum juniora purpurascentia, subtus pallida, costâ valde robustâ laïque, nervis prominentibus suboppositis furcatis, ad marginem reticulatis, avenia.

Petiolus valde crassus, cylindricus, lineas duas ad sex longus, insertus dorso vaginæ laxæ membranceæ in ligulam magnam petiolo duplo longiorem erectam bilobam ciliato-barbatam desinentis.

Scapus crassus, cylindricus, rufescens, pedalis, apice semel bisve furcatus.

Bractea ovata, acuta, adnata, ciliata, laxa, pollicaris, infra bifurcationem scapi, decidua.

Flores magni, albicantes vel rosei, inodori, pedunculati, congesti in paniculam terminalem compactam subracemosam nudam leviter nutantem.

Pedunculi teretes, crassi, rufescentes; *Pedicelli* vix unguiculares.

Calyx ovatus coloratus, profundè quinquefidus; *lacinia* ovata, obtusæ, erectæ, leviter ciliatæ.

Petala subrotundo-ovata, unguicularia, basi in unguem brevem angustata, calyci intus inserta, laciniisque ejus alternantia.

Filamenta subulata, calyci inserta, patentia, quorum quinque petalorum longitudine laciniis calycinis opposita; quinque illis alternantia et breviora, petalis opposita. *Antheræ* ovatae, erectæ, utrinque longitudinaliter dehiscentes, rubicundæ.

Ovarium superum profundè bipartitum, seu potius ovaria duo oblongo-ovata convexa latere interiori plana lineâ longitudinali exsculpta, unilocularia, polysperma. *Ovula* valde numerosa adfixa placenta oblongæ carnosæ paginæ interiori lineæ istæ longitudinali correspondenti insertæ. *Styli* duo, longitudine filamentorum majorum, crassi semiteretes, divaricato-patentes. *Stigmata* car-

nosa, subreniformia, mucosa, viridia

Observation. I received this ornamental plant in the beginning of 1818 from Mr. EDWARD GARDNER, the Resident at *Katmandu*, and from Mr. SMITH, my assistant at *Sylhet*. I have since had a great number of roots from both places which are thriving very well in the Botanic Garden at Calcutta.

There are, it appears, two varieties; one with almost pure white, the other with more or less pink-coloured blossoms, which gradually change into each other sometimes even on one and the same plant, and which added to the large, shining thick-leaves give the species a very beautiful appearance. The young leaves are of purplish or brownish colour and stand somewhat erect.

Blackwellia spiralis. Wall.

Folius cuneiformi-obovatis, glanduloso-dentatis, subtus pubescentibus, spicis axillaribus solitariis longissimis nutantibus, floribus subpentandris.

Habitat in Pegu. In horto botanico Calcuttæ floret mensibus Augusto-Decembre.

Arbor magna, ramosissima, trunco recto, cortice glabro cinereo deciduo. Rami longissimi, teretes, glabri, calloso-punctati, penduli.

Folia alterna, subbifaria, petiolata, palmaria et majora, cuneiformia v. obovata, coriacea, apice rotundata cum acumine lato obtuso, basi attenuata, remotè et obtusissimè dentata, sinubus inter dentes incrassatis glandulosis, suprà glabra, subtus costâ nervisque prominentibus pubescentibus.

Petiolis crassi, brevissimi, pubescentes, suprà plani.

Stipulæ lanceolatæ v. lineares, caducæ.

Spicæ nudæ, indivisæ gracillimæ cylindricæ, folia æquantes, post deflorationem elongatæ, nutantes, brevissimè pedunculatæ, villis copiosis brevibus canis vestitæ. Rachis teres, gracilis, subligulosa,

spiralis.

Flores parvi, sessiles, 6 ad 10 dispositi in glomerulos densissimos spiræ in modum circum rachin ordinatos, elongatione spiræ remotiusculos. *Bractea* parva lanceolata dicidua infra omnes glomerulos, aliæque minutæ infra singulos flores.

Perianthium 10 v. 12-phyllum, patentissimum, radiatum; foliola minima, villosa, ciliata, albicantia, acuta: exteriora 5 v. 6 linearia; interiora subspathulata, illis parum latiora.

Filamenta 5 v. 6 glabra, capillaria, perianthio longiora, foliolis ejus interioribus opposita, patentia. *Antheræ* fuscæ, ovatæ, didymæ, utrinque dehiscentes, glabræ.

Nectararia tot quat stamina cumque illis alternantia, carnosæ, sessilia, subrotunda, majuscula, aurantiaca, villosa.

Ovarium semiinferum, turbinatum, villosum, intra perianthium ovato-acutum, angulatum, uniloculare, loculo magno lineis duabus vel tribus parietalibus notato, ovulis pluribus lateribus gregatim adfixis, cylindricis pendulis.

Styli duo, e basi latâ intus sulcatâ (persistente?) divergentes, subulavi. *Stigmata* minuta, globosa.

Observation. This handsome tree sprung up accidentally from earth which was received from Pegu in 1811, and has since grown to a considerable size, with numerous long and slender pendulous branches which it emits from the base almost of the stem. It has blossomed freely during the three last years without shewing any disposition to produce fruit. In general habit as well as in the peculiarly fetid smell of the flowers it is exactly like *Ludia foetida*, Roxb. Mss. a species of *Homalium*; which the doubts of Yassieu, Willdenow and the author of that article in Rees' new Cyclopædia seem to require should be united with *Blackwellia*. The parts of the flower are in that tree more numerous and the stamens fascicled. It has for many years blossomed abundantly without

once producing any fruit.

Blackwellia tomentosa, Vent. which I know only from POIRET's Supplement to the Encycl. botanique. i. 640, seems to be a distinct species from that described above.

Clematis similacifolia. Wall.

Scandens, foliis simplicibus ovato-cordatis, petiolis acirrhatis, racemis axillaribus paucifloris elongatis.

Habitat in montibus Bengalæ orientalis prope Sylhet, ubi vocatur *Bæghandi*; inque Napalia. Floret initio anni.

Frutex volubilis, ope petiolorum scandens, omnibus partibus glaberrima, ramis gracilibus elongatis sulcatis striatis fuscis articulatis.

Folia opposita, longè petiolata, integerrima, acuta, quinquepollicaria ad palmaria, subcoriacea, quinquenervia, transversim reticulato-venosa.

Petioles teretes, graciles, suprà planiusculi, basi delatati, longitudine folii, hinc inde torti, absque ullis cirrhis.

Racemi oppositi, foliis duplo triplove longiores, floribus longè-pedunculatis oppositis majusculis.

Pedunculi striati; partiales quadripollicares, patentes.

Bractee infra singulum par pedunculorum oppositæ, lanceolatae, subcuneatae, semipollicares. Aliæ interdum infra medium singuli pedunculi partialis oppositæ, lineares, recurvatæ.

Perianthis foliola quatuor, patentia, demum reflexa, oblonga, acata, unguiculata, crassa, extus ferrugineo-villosa, striata, intus glabra violacea.

Petalis nulla.

* Since writing this I have received specimens from Nepal of a tree which, together with that described here, belong to *Hamelias* and probably form two new species of *Astranthus* Lour., as suggested by Mr. Robert Brown in Tuckey's narrative of the expedition to the Great Ganges, append. p. 400.

Stamina numerosissima, patentia, filamentis apice subulatis nudis. *Antherarum* locula linearia, utrinque adnata.

Pistilla copiosa, erecta, staminibus breviora, villosa-barbata, receptaculo elevato piloso insidentia.

Capsulae numerosae, fuscae, compressae, falcatae, margine incrassatae, sparse pilosae, apice incurvatâ sensim desinente in setam gracillimam bipollicarem plumosam.

Funiculus brevis, filiformis, apici loculamenti hinc applicatus. Coet: ut in *Clemati Vitalba*. Gaertn. Carp. i. 353 t. 74.

Observation. This species is sufficiently distinct from all its congeners and requires no further detail. Its elegant leaves, the dark brown velvet perianth, and the numerous yellow stamens contribute to render it a very beautiful plant.

Menispermum Cocculus.

Perenne volubile et scandens, foliis cordatis, basi truncatis firmis lucidis. Mfs. Gul. Roxburgii.

Natfjatam f. *Batta-Valli*, Rheed. Mal. vii. 1. 100. 1.

Tuba baccifera, Rumph. Amb. v. 35. tab. 22.

Tuba flava, ibid. 38 tab. 24?

Menispermum Cocculus. Linn. Mat med. n. 175. (exclus: synonym. Pluckenetii) Gaertn. Carp. i. 219. tab. 70.

Menispermum lacunosum. Lam. Encycl. Bot. iv p. 98.

Menispermum flaves cens. Lam. ibid?

Cissampelos Cocculus. Poiret. ibid v p. 9 (exclusis plurimis synonym.)

Habitat in Malabar; Amboina, Celebe, etc. In hortum botanicum Calcuttæ introductum a cel. B. Heyne. M. D.

Frutex magna f. potius arbuscula, volubilis et supra arbores ope basium petiolorum cirratorum latè scandens, ramosissima, frondosissima, sempervirens.

Rudix crassa, lignosa, ramosa; intus flaua, lacunosa; vetustior cortice suberoso obtecta.

Truncus crassus, cylindricus, cortice vestitus suberoso molli rimis plurimis parvis notato cinereo, basi emittens stolones radicales, plures orgyas longas, apice foliosas, tenellas purpurascens. *Rami* longissimi, teretes, glabri, sordide grysei, penduli; juniores uti omnes reliquæ partes laevissimi, pallidi, glaucescentes.

Folia sparsa, petiolata, patentia, ramulorum valde approximata, amplissima, dodrantalia et ultra, coriacea, firma, subrotundo-ovata, obtusa v. acutiuscula, apice cum mucrone decidua margineque integerrimo recurvatis, basi leviter cordata, vel subtransversa, semper ad insertionem petioli levissimè emarginata, supra atroviridia lucida, inter vasa in bullas latas transversales elevata; subtus concava glauca, surfure parco adpersa, septem-v. quinque-nervia, costâ basi integrâ nervisque extrorsum ramosis valde prominentibus carinatis, venis gracilibus horizontalibus, sinibus vasorum, præcipue axillis nervorum glanduloso excavatis, ad paginam inferiorem folii villorum acervulo notatis, ad superiorem elevatis. Folia adulta, præprimis eorum vasa flavescens; juniora ovata, acuta, coloris lætissimè viridis.

Petioli graciles, teretes, lignosi, supra leviter sulcati, folia longitudine aequantes, juniores duplo et plus breviores, apice incurvâ tumidi, basi valde incrassatâ pollicari variè hinc inde torti, cirrhati.

Stipula nullæ, nec earum vestigium.

Inflorescentia foeminea. *Racemi* oblongi, laxi, penduli, numerosi, 4 v. plures fasciculati, raro solitarii, ex ipso trunco ramisque vetustioribus, pedunculati, compositi, pedales bipedalesque. *Racemuli* sparsi, subsessiles digitum circiter longi, cylindrici, patentissimi, nox adscendentes (ratione pedunculi universalis recurvati.)

Pedunculus basi nudus, teres, incrassatus, extrorsum leviter angulosus; partiales graciles, striati: omnes subcarnosi, laeves, lactescentes,

infertione leviter intumescences et subarticulati.

Flores sparsi, albi, carnosii, patentes, copiosi. *Pedicellis* teretes, crassiusculi, lencas duas longi, basi medioque bracteolâ unâ duabusve minutis ovatis acutis emarcescentibus instructi. Similes bracteolæ ad infertionem racemuli singuli, uti priores valde deciduæ.

Perianthium petaloideum, hexaphyllum, recurvatum, æstivatione imbricatum; foliola lanceolata acuta duplici ordine disposita, aqualia. Foliola alia 1-v. 2. rarius 3, minima, bracteiformia (calyx?) lato-ovata v. oblongata, obtusa, basi floræ adpressa, hujus foliolis alternantia, cumque illis decidua.

Ovaria tria, rarius quatuor, erecta, subulato-ovata, dorso gibbosa, contigua, perianthii foliolis interioribus alterna, hisque breviora, unilocularia, monosperma; ovula oblonga, teretia, sursum adfixa, pendula. *Stigmata* sessilia, subulata, acuta, cornosa, rugosa, recurvata, mucosa.

Nectaria s. rudimenta staminum 8 v. 10, basin ovariorum ambienda; patentia, carnosia, cylindrica, truncata, inæqualia, minima.

Inflorescentia mascula haud visa.

Observation. The following is an extract from the late Dr. ROXBURGH's valuable manuscript. "There is no figure in REEBE'S or RUMPHIUS' works which I can quote for this famous plant: nor indeed in any book known to me, except that of GAERTNER and that extends only to the fruit. It is a native of Malabar, from thence seeds were sent to the Botanic Garden at Calcutta in 1807. In 1812 the plants reared from these were sufficiently large to extend over a considerable Mango tree, having stems as thick as a man's wrist, covered with deeply cracked pongy ash-coloured bark: the young shoots smooth and green. Leaves alternate, very exactly cordate, entire, apex obtuse or emarginate, of a hard texture, lucid above, paler but no wise tomentose or villous underneath, from 4 to 12 inches long, by 3 to 8 inches broad. I cannot say

" any thing of the natural character, as our plants have not yet blossomed."

One of the four individuals alluded to in this extract blossomed for the first time towards the close of 1816, and while I write this (in December of the following year) both that and another female somewhat smaller shrub are covered from the base of the stem along the principal branches with innumerable fascicles of pendulous racemes, which give them a very stately appearance. The smell of the flowers spreads to a great distance and being very powerful is *offensive* in the immediate vicinity of the shrub, not unlike that of the common *Berberis* and *Lawsonia*. The root is ligneous and very branchy, porous and of a deep yellow colour within, possessing a peculiar, strong and nauseous smell, and like all the tender parts of the plant a bitter taste. The principal branches of the root are covered with a spongy cracked bark. The circumference of the trunk measures at present between fourteen and seventeen inches. The old leaves especially their ribs and nerves are yellowish.

The mistake of POIRET in uniting *Cissampelos Pareira*, *Caapeba* and other plants with *Menispermum Cocculus* L. in the continuation of LAMARCK's *Encycl. Botanique*, v. p. 9. has been adverted to by the illustrious author of the articles *Menispermum* and *Cissampelos* in REES' new *Cyclopædia*.—Lamarck (l. c. iv. p. 96.) cites RUMPHIUS' *Tuba baccifera* with some doubt as a variety, or perhaps the female plant only of his *M. tuberculatum* (Roxburgh's *M. verrucosum*, see FLEMING in *Asiat. Research*: xi. p. 171); and two pages further on, he forms it into a distinct species, which he calls *M. lacunosum*, and which is the same as *M. Cocculus*. I am surprised that neither RHEDEE's nor GAERTNER's works have been quoted under this head. The same great botanist establishes a separate species on RUMPHIUS' *Tuba flava* and calls it *M. flavesceus*,

(l. c. p. 98,) having previously remarked, with great propriety, that it comes very near to the *Tuba baccifera*. I have ventured to quote both these plants of RUMPHIUS as synonyms: because though his descriptions of their flowers and fruits seem to differ, yet they agree perfectly in other respects and the leaves of the shrub which is described above, varying from almost orbicular obtuse to ovate-cordate, more or less acute, unite in them the characters of both those plants.

RHEEDE's figure of the leaves is a pretty exact representation of those of my plant; and agrees better with the description in the *Herbarium Ambavinense* than RUMPHIUS's own plates do, notwithstanding the remark of this last mentioned author to the contrary.

I have not been able to identify this plant with the Sanscrita name of it, *Cácámari*, given by Dr. W. AINSLIE, in his excellent *Materia medica of Hindoostan*, pag. 81; nor have my hopes of succeeding in tracing the name *Cocculus* to the Sanscrita *Cácoli* and *Kacola* been realised; one of these latter belonging to an innoxious bulbous root, the other to an aromatic fruit, which certainly is not that of the plant in question. My worthy friend, the Reverend Dr. WILLIAM CAREY, informs me that one of his pundits, a native of *Malabar*, to whom he shewed the fruit which I had procured of the *Menispermum*, recognised it immediately as being produced in vast abundance on that coast, where it is called *Gavala-phala*, or the *poison fruit*, also *Cácámari*, from the circumstance of the natives, especially the Christians who, he says, feed on crows, making use of it to kill them. They bruise the fresh or even unripe seeds and mix them with boiled rice into a paste which is laid about for the crows and infallibly kills all that eats of it. He adds, that a large fruit of another kind, to which the name *Kákamári* is given, is used for the same purpose, but only intoxicates the crows, so that they may be easily taken. I under-

stand that these seeds are employed about Calcutta for catching fish and killing crows, but I have only been able to meet with them in a single native shop, where they were sold to me under the name of *Bacaen-ka-phal*, probably from their fancied likeness with the fruit of a kind of *Melia* (*Melia sempervirens*, in Sanscrita *Mahanimba*) which goes by that name. *Cacamasi* and *Garala phala* are both legitimate Sanscrita words, though they are not to be met with in any of the dictionaries or medical writings of the Hindoos consulted on this occasion.

Since writing the above Mr. MURDOCH BROWN of *Anjarakandy* has favored me with the following account, in reply to several queries which I took the liberty to propose to him relative to this interesting shrub.

“ The *Cocculus Vine* is indigenous in *Malabar* and *Canara*, and grows in the interior of most parts of those provinces, but most luxuriantly in *South Malabar* and *Travancore*. I have never seen it wild within less than ten miles of the Sea, though I have planted it within half a mile, where it grew vigorously and produced fruit. Here (at *Tellicherry*) it grows to an immense size, overtopping the highest forest trees and by its wiry hard tendrils catches hold of the branches of the adjacent trees and thus creeps from one to another to an astonishing distance from the parent root. When in blossom all these various branches as well as the parent stem are thickly covered with large bunches or grapes, which afterwards yield a surprising quantity of the Berries.”

“ The natives make no use of the roots either in medicine or for dying, so far as I have been able to learn.”

“ One of the largest of my planted Vines, about 15 years old measures 21 inches round at about a foot and a half from the ground. Last year (1817) they began to put forth their flow-

"ers on the 15th of September, and all were full of blossoms by
 "the 10th of October. The flowering branches shoot from the
 "trunk of the Vine and also from the wood of the large branches.
 "The flowers are succeeded by small white berries, to the number
 "of 2 and 300 on a bunch, which continue slowly to increase in
 "size until the commencement of March, when they begin to ac-
 "quire a purple colour, not all together, but successively, and fall
 "off, when they have become of a bright purple, one by one, as
 "each berry attains maturity. The birds also carry off great
 "numbers in this state; a circumstance which leads the natives
 "to gather them before they begin to change colour, and conse-
 "quently before the kernel has acquired the oily part, which
 "constitutes its value as a poisonous drug."

"I have never heard that the drug was put to any other use
 "but that of a vermifuge on black cattle and horses, and for killing
 "or rather stupifying fish, so as to make them float on the surface
 "and be easily caught. What is carried from hence to *Arabia*
 "and *Persia*, is as I have been assured, used for the same purposes.
 "It is probable that when fresh it would also kill rats and crows:
 "indeed it is used with that intention in some parts; but having
 "never seen this done I cannot therefore speak to its effects. In
 "*Canara* I have met with a kind of wax made of its kernels freed
 "from their husks, used for burning in Lamp."

"The proper name in *Malabar* is *Nanja Cooras* (Poison Berry),
 "but it is more generally known to traders and the common peo-
 "ple by the name of *Polla Kay* (light or imperfect fruit) from its
 "being gathered before maturity, the kernel not having acquired
 "its proper size to give the Berry weight. In *Canara* it is named
 "*Garala Phala*, but whether that be the Sanscrit name I cannot
 "say; *Caca-mari* or *Kill-crow*, is the *Dukhani* name, and probably
 "derived from the use that is made of it."

“ There is no prohibition to its exportation here † and the demand is inconsiderable. The Arabs still take away a few candies (about 670 lbs.) of it annually. The price in England is so low that it will hardly pay freight, though some years ago large quantities were sold there at a high price.”

Note by the Secretary.

There are several Sanscrit terms familiarly known on this side of India, which might be supposed to refer to the *Cocculus indicus*, but which on examination prove to have nothing in conformity with it except the sound. That amongst these, the words *Cácolí* and *Caccola* are affixed to very different Substances, as is noticed by Dr. WALLICH, will perhaps be most satisfactorily shewn by the following account of them, extracted from original authorities.

Cácolí. The Hindus enumerate in their medical works a class of eight substances, which they denominate the *Ashita verga* or class of eight: they are all roots, and appear to come chiefly from *Nepal* and the countries skirting the *Himalaya* mountains; their properties are supposed to correspond, and they may be employed either separately or collectively, as remedies in a great variety of morbid conditions: their general virtues are thus detailed: They are cool, sweet, fattening, and aphrodisiac, promotive of digestion, sanative, lactiferous and tonic; they are corrective of the vitiated humors or wind, bile, and blood, curative of fever, and of great efficacy in urinary and phthisical affections. They are severally named *Jivaca*, *Rishabhá Méda*, *Maháméda*, *Cácolí*, *Cshira Cácolí*, *Riddhi*, and *Vriddhi*: they are probably tonic medicines of some power and at least merit further investigation: the substance amongst these termed *Cácolí*, is generally connected with the one subsequent to it in the above list, or *Cshira Cácolí*, and they are thus described

† Mr. W. Harington, Collector of Customs at Madras, informs me, that a very heavy duty has been laid upon the drug, amounting almost to a prohibition.

in the *Bhāva Prāsa*: These two drugs, are procured from *Morung*, and the adjacent districts. *Cshira Cācoli* resembles the root of the *Pivari* (*Asparagus racemosus*), and is of a white colour, a fragrant smell, and full of a milky sap. The *Cācoli* is of similar form and character, but of a dark hue. They are both sweet and cooling, they remove fever, and correct a vitiated state of the blood and bile: the root of the *Vidāri* (*Convolvulus paniculatus*) and the *Afwagandha* (*Physalis flexuosa*), are severally substitutes for the *Cācoli* and *Cshira cācoli*.

Caccola or *Caccolaca*. This substance is always classed amongst the perfumes, and forms one of the ingredients in different aromatic compositions, along with *agallochum*, *frankincense*, *camphor*, *musk*, *saffron*, *spices*, and other similar articles. It is procured in the bazar in different degrees of freshness, and is a berry of a more or less irregularly oval form: when freshest it is invested with a thick green sebaceous and fragrant coat, but in a more advanced state, this shrinks so as to be scarcely discernible from the shell which is of a greyish colour; in either state the centre is filled with a resinous inflammable substance, of a strong and spicy odour soluble but very sparingly in water, and more abundantly in spirit. The history of this substance is not given in any of the medical works I have consulted, nor are its character and origin known to any of the native Druggists, although used by them in many of their compounds. It appears sometimes to be confounded with *Civet*, and it is called so, or *Chatafi* by the author of the *Sabda-Chandricā*, a medical vocabulary in Sanscrit with a Bengali translation: if this is not an error of the author or translator, the berry sold by the druggists cannot be the true *Caccol*, but I much doubt the accuracy of the interpretation: the synonymes will all apply to either substance, though they require to be translated out of a metaphorical phraseology: the names given in the *SabdaChan-*

drica are *Cacola*, *Colaca*, *Gandhavyacula*, *Tailasadhana*, *Caccolaca* and *Cosshaphala* of which the two first and fourth, though anomalous formations, appear to relate to the *Cola* or fruit of the Jujube, to which the *Caccola* berry may be compared in appearance; *Gandhavyacula* means distressingly-oderiferous; *Tailasadhana* either the purifier of oil, or that of which oil is the solvent, and it may be observed that civet is most readily soluble in that menstruum; the last term *Cossha phalam*, may be rendered the fruit of the scrotum or sheathe, referring either to the part of the animal whence it is extracted, or to the sort of coat by which the berry is invested. The *Rāja Nighant*s and *Bhāva Pracaśa* describe the medical properties of *Caccola*, and state it to be pungent, bitter, warm, and carminative, sweetening the breath, relieving heart-burn, exciting appetite and promoting digestion, and remedying morbid affections of wind and phlegm: neither this nor *Cācoli* therefore are considered as poisonous, nor can they be confounded with the *Cocculus indicus*.

The only remaining word which may imply the fruit of the *Cocculus* vine is to be found in the vocabularies of *Amara* and *Hemachandra*, amongst the different kinds of poison: no description however accompanies the name, nor have the different commentators on *Amara* supplied this deficiency, nor illustrated the nature or origin of the substance, by etymological analysis: The word is *Cācola*; it implies a poison, not of animal origin, and is derived according to *Raya Mucuta* from the same word *Cācola*, a raven, from its being of the like dark colour: in this it corresponds sufficiently well with the hue that the *Cocculus* berry is mentioned by Mr. BROWN to acquire when ripe, and being similar to it in its poisonous property, as well in its appellation, it is possible that in this word we have the *Sanskrit* origin of the name given by European writers to the fruit of the *Menispermum Cocculus*.

REFERENCE TO THE PLATES.

Primula prolifera

- a. peduncle and bracte with the calyx opened;
- b. corolla;
- c. fruit bearing verticil.

Convallaria oppositifolia.

- a. flower,
- b. ditto opened ;
- c. pistillum ;
- d. e, sections of ovarium ;
- f. berry ;
- g. h, sections of the same ;
- i. seed ;
- f. g, sections of the same shewing the embryo,

C. cirrhifolia.

- a. b, leaves viewed from both surfaces ;
- c. flower,
- d. ditto opened

Daphne involucrata.

{The letters in this plate have by mistake been engraved as capitals),

- a. flower ;
- b. ditto opened ;
- c. pistillum ;
- d. the same with the ovarium opened.

D. cannabina, Lour?

(Two plates; the last struck off on the common sort of paper manufactured from the bark of that shrub in Nepal.)

- a. peduncle with the common receptacle and two detached bractes ;

DESCRIPTIONS OF

- b. flower ;
- c. the same opened ;
- d. pistillum, with its hypogynous annular membrane opened ;
- e. drupe with part of the withered perianthium attached to its base ;
- f. g, sections of the fruit ;
- i. embryo ;
- k. cotyledons.

D. *Gardneri*.

- a. flower ;
- b. ditto opened ;
- c. peduncle and receptacle, with a detached bracte
- d. pistillum ;
- e. the same, shewing the pendulous ovalum.

Andromeda lanceolata:

- a. flower ;
- b. calyx opened ;
- c. corolla, opened ;
- D. ovarium divided horizontally.

A. *ovalifolia*.

- a. flower ;
- d. ditto, the corolla removed ;
- b. corolla opened ;
- c. stamina (augmented).

Gaultheria fragrantissima.

- a. flower ;
- b. peduncle and bractea ;
- c. calyx and pistillum ;
- d. corolla, opened ;
- e. stamen (augmented)

Saxifraga ligulata.

- a. flower ;
- b. ditto opened ;
- c. pistilla ;
- d. one of them somewhat enlarged ;
- e. ovarium divided horizontally.

Blackwellia spiralis.

- a. b, flower viewed from two sides, with a detached bracte ;
- c. pistillum, shewing the infertion of the ovula ; all slightly augmented.

Minispermum Cocculus. (Two plates.)

- a. partial raceme, natural size ;
- b. flower,
- c. ditto with its detached leaflets ;
- d. peduncle, all the parts of the flower removed except the nectarial scales ;
- e. pistilla ;
- f. ovaria cut horizontally ;
- g. ditto divided longitudinally.

XII.

An Account of a new Species of a CAMELLIA growing wild at Nepal. By N. WALLICH Esq. Superintendent of the Botanic Garden, Calcutta.

Read December 12, 1818

AMONG the numerous valuable additions which the Botanic Garden at Calcutta owes to the indefatigable and successful researches of the Honorable Mr. GARDNER, are specimens in full blossoms, plants and ripe fruits of the genuine Tea shrub and its nearly allied neighbour, the *Camellia*. Of the former of these, he informs me, there is only one shrub at *Katmandu*, growing in the garden of a Cashmeere, where it was originally introduced from *China* while a young plant. It has attained a height of 9 or 10 feet, is rather tall than bushy, being of no great circumference in its branches or stem, but thriving exceedingly well, producing abundance of blossoms and ripe capsules annually, from September to November. Most of the offsets which Mr. GARDNER has caused to be taken from it have unfortunately failed after continuing very vigorous for some time after they had been put in the ground, but as the attempt will be repeated I doubt not, that both the Tea-shrub, and the equally interesting *Nepal Camellia* will before long be introduced into such parts

of the Northern Hindoostan, as may appear best calculated to their successful cultivation. The tree which is the subject of the present enquiry was discovered by Mr. GARDNER on the mountains of *Sheopore* and *Chandra-Ghiri*, which form the boundaries of the Valley of *Katmandu* to the North and South, and have been noticed in KIRKPATRICK's account of *Nepal*. It grows to a considerable size throwing out numerous leafy branches, and producing blossoms during the rainy season, that is from July to October, succeeded by abundance of fruit which ripen in the course of three months. Notwithstanding the conspicuous oiliness of its seeds, the tree does not seem to be used by the natives for any purpose but that of fuel. Mr. GARDNER remarks with great justice, that it is so like the genuine Tea both in its leaves and blossoms, as to be easily mistaken for it; the very same observation has been made by Chevalier THUNBERG in his *flora japonica*, in speaking of his *Camellia Sasanqua*, a circumstance which corroborates the affinity which exists between these two species. I consider them however as sufficiently distinct from each other, and shall conclude my description of the *Nepal* tree, which I propose calling *Camellia Kiffi*, the *Newar* name being *Kiffi* or *Kiffi-Soah* by enumerating the points on which their specific difference appears to me to rest. Mr. GARDNER informs me that, like those of the *Sasanqua*, its leaves acquire on being dried the peculiar fragrance of Tea; and that he intends trying them as an improver of and substitute for the latter, in the manner in which Professor THUNBERG informs us that his tree is used in *Japan*.

Camellia Kiffi, Wall.

Folius ovato-oblongis attenuato-acuminatis, aculé ferrulatis basi integerimis, petiolis ramulique novellis villosulis; floribus axillaribus terminalibusque subternis, stylo brevissimo stigmatibus elongatis,

capsulis trivalvibus trispermis glabris,

Arbor ramosissima, umbrosa, cortice ramulorum chircæcedis, novem-
rum petiolisque villosis.—*Folia* alterna, patentia, approximata, cori-
acea, ovata, v. ovato-oblonga, tripollicaria, sesquipollicem lata,
interdum majora, acumine semipollicari margine convexiusculo,
exceptâ basi acutâ, ferrulato, laevia, suprâ atroviridia lucida,
subius pallida, costâ elevatâ, nervisque obsoletis obliquis ad
peripheriam anastomosantibus.—*Petioles* planiusculi, sulco lato ex-
arati, vix ultra lineas duas longi.—*Flores* albi terni, nunc in axillis
solita rii v. terminales geminati, sessiles.—*Calyx* octophyllus,
caducus, aestivatione gemmaceus conicus semipollicaris, foliolis
ovatis imbricatis concavis coriaceis fuscescentibus obtusis cum-
cuspidulâ minutâ, ad apicem leviter sericeis, exterioribus minori-
bus.—*Petala* obovata, retusa, patentissima, basi angustata, semipoll-
icaria, dorso parum sericea.—*Stamina* octoginta v. plura, petalis
parum breviora, cumque illis patentia, filamentis crassis dup-
lici vel triplici serie ad basin con nata in anulum angustum
pallidè aurantiacum ovario breviora.—*Antheræ* complanato ovatae,
disco carnosæ, utrinque dehiscences, biloculares.—*Ovarium* subro-
tundum obsoletè triangulare, villis densis sericeis vestitum,
triloculare: ovulis in singulo loculo sex v. pluribus axi in-
sertis.—*Stylus* crassus, brevis, villosus.—*Stigmata* tria filamenta
subæquantia, patentia, clavata, intus sulcata, apice papillosa.—*Capsula*
rotundato-triangularis, pollicaris, lignoso-coriacea, trilocularis,
nunc bilocularis, trivalvis, valvis lato ovatis, apice incrassatis
marginibus truncatis latis; extus fusca subnigricans, glabra;
immatura pubescens.—*Dissepimenta* membranacea, contraria, nunc
incompleta v. subobliterata.—*Semina* foliaria grandia, nucamen-
tacea, fusca, gibboconvexa, intus planiuscula vertice umbi-
lico parvo notata; unicum reliquis sæpius majus; uno duo-
busve nunc abortientibus.—*Integumentum* duplex: externum

cruftaceum, fragile; interius tenue, fufcum, lamellofo-membraceum, venuloſum. — *Receptaculum* centrale, triquetrum, apice ſemina afficiens, demum liberum. — *Albumen* nullum. — *Embryo* ſemini conformis, hinc gibboſus. — *Cotyledones* amygdalino-carnoſæ, valde inæquales, una ſupra alteram; oleinæ. — *Radicula* parva conica intra cotyledonum baſes excavatas latens, centripeta.

Obſervation. I have already hinted above at the great affinity which exiſts between this ſpecies and Thunburg's *Saſanqua*, *Flora Japon.* 272. t. 30; the latter differs ſpecifically in having blunt and ſmaller leaves, ſolitary terminal flowers, a long ſtyle and villous capſules; its ſize is alſo much larger than that of our plant, which never grows beyond the height of a ſmall tree. The figure of that ſpecies in Lord MACARTNEY'S Embaſſy to China, vol. II. p. 467 agrees better with our plant, but its leaves ſtill want the decided acumen, beſides being more deeply ferrated. The common *Japan* roſe has more firm and ſhining leaves with ſtronger ferratures, its flowers are much larger and the petals of a leathery thick texture.

On referring to the drawings of the Botanic Garden which were executed in the latter part of 1814, during the Superintendence of my eſteemed friend and predecessor Dr. FRANCIS HAMILTON (late BOCHANAN) I find, he has figured a ſpecies of *Camellia* under the name of *Chamegota*, ſo called by the natives inhabiting the mountainous countries bordering on *Sylhet*, from whence it was ſent by my indefatigable aſſiſtant, Mr. M. R. SMITH, who obſerves in his letter accompanying the ſpecimen, that it grows to the height of about 7 feet, and is covered in December with white fragrant bloſſoms. I am unable to diſcover the leaſt difference between that and the *Nepal* plant, and heſitate not conſidering them as one and the ſame ſpecies.

Since the preceding account was written I have had an opportunity of comparing my plant with the description and figure of *Camellia oleifera* published by Mr. CLARK ABEL in his interesting journey to the interior of *China* (p. 174 c. icones, et p. 363). These two species are unquestionable very like each other; that from *Napal* may however, be distinguished by having larger acuminate leaves, not altogether destitute of nerves and but slightly marked, on their under surface, with elevated dots, which are only observable by means of a powerful lens; its flowers being smaller and its style much shorter than that figured in the plate attached to Mr. ABEL's description. The variety mentioned p. 199 has still greater affinity to my tree.

The leaves of the *Nipal* tree have a very strong but transient smell of Tea; but their infusion, possesses only to a very slight degree its flavour, owing perhaps as Mr. GARDNER justly observes, to the defective manner of gathering and drying them for the trials which he instituted. It has been ascertained by my esteemed friend that the Napalese extract an oil from the seed of the *Kissi* by pressure, which is much valued by them as a medicine. The seedlings reared in the botanic garden at *Calcutta* are thriving very well.

The stem and branches of this tree are subject to the growth of large sessile excrescences, perhaps a species of parasitical fungus, of an oval form and spongy texture which are said to be very poisonous. They have been repeatedly sent to me in a dried state attached to specimens of the *Camellia*, but I have as yet not been able to ascertain their specific nature.



Senecio jacobina







54713

Daphne involucrata.



Nephrolepis canaliculata Lour.



W. & A. G. S. del.

Daphne cannabifolia Lour.

W. & A. G. S. sculp.



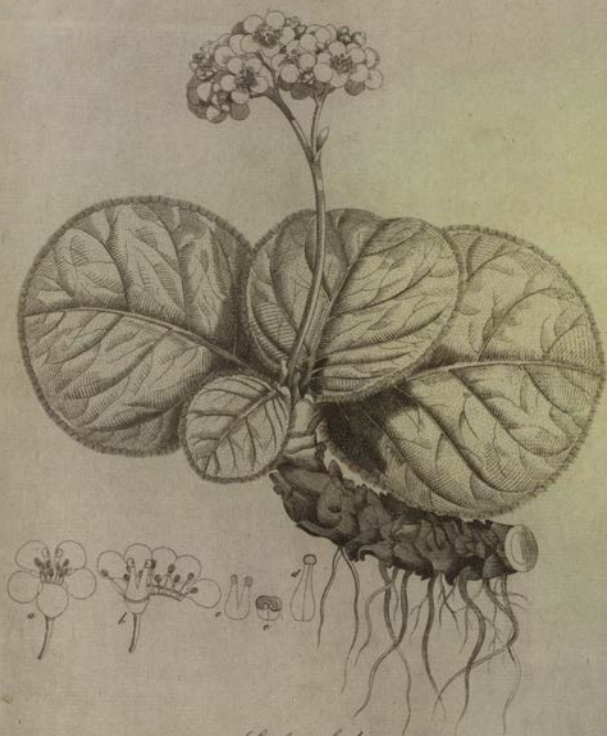
Daphne Gardneri







Gaultheria fragrantissima

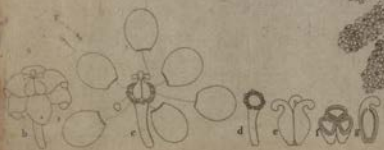


Griseb. del.

Saxifraga ligulata

Ramond. H.







Menispermum Cocculus



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